This week…

- **RSC Users of the Month** – Manny de Jesus Lopez
- **Brown Bag Webinar this week**: SEM- XRF
- **ICDD Webinar** – XRD JADE Software – April 27, 2022
- **Lab-Buddy Safety System for RSC After-Hours Work**
- **Did you know?**
Brown Bag Webinar this week by Robert C. Tisdale, IXRF, Inc.

RECENT ADVANCEMENTS IN INTEGRATED X-RAY SOURCES FOR SCANNING ELECTRON MICROSCOPY.

Since the beginning of the 21st century, many advances for scanning electron microscopy (SEM) have been commercialized. One of the most significant of these has been the introduction of X-ray sources into the SEM to extend and enhance elemental analysis capabilities. Demonstration of the efficacy of employing small X-ray tubes, that have been modified for mounting on SEMs, date as far back as 1989. These X-ray sources fall into two categories: pin hole collimated low-power transmission target miniature tubes that afford small spots, and micro-focus higher-power tubes with integrated polycapillary optics that produce macroXRF scale (10μm) beam spots at the sample. Both of these approaches are analytically viable options for an SEM enhancement, allowing samples to be excited by either an electron beam (SEM/EDS) or X-ray photons (SEM-XRF). It is also possible to analyze samples by employing both excitation strategies simultaneously or sequentially (Combo, see Figure 1). Quantitative analysis using this combined approach uses the advantage of e-beam excitation for lighter elements below 2.0 keV, and the more efficient photon excitation for X-ray lines above 2.0 keV (see Figure 2, NIST 610 example). MicroXRF with XY-stage scanning may be used to collect X-ray elemental maps similar to those collected with e-beams, except that the stage is scanned instead of rastering the e-beam. Benefits of microXRF within the SEM are illustrated, including the analysis of multi-layer thin film samples, a larger elemental range, true bulk measurements, microXRF mapping, enhanced sensitivity down to ppm levels, scattering fundamental parameters for trace elements in low-Z matrices and non-destructive measurements (no e-beam damage and no coatings are required for microXRF analyses).
ICDD Webinar – XRD JADE Software – April 27, 2022
ICDD is hosting a FREE phase identification webinar using Jade software. Jade is the new software package we have added to our JCPDS workstation and it is already liked with the PDF4+ database. Register for the webinar HERE.

Lab-Buddy Safety System for RSC After-Hours (5:00 – 8:00 PM) work and weekends: **It is required!**

- Please use the after-hours RSC Lab-Buddy/E-Buddy Safety System. Details can be found at https://rsc.aux.eng.ufl.edu/safety/ebuddy.asp
- Cleanroom use (no Acid Benches) is now allowed on weekends (8:00 AM – 8:00 PM)

Did you know…?

- You should not bring any food or beverages into the labs.
- You can join the RSC Users’ Teams by clicking on the Microsoft Teams icon at the top of the Weekly Update and the RSC homepage.
- You can request to meet with RSC Staff in person or on-line through this link. It can be also accessed on the orange tabs at the RSC home page.
- You can submit an anonymous tip/note to RSC Staff.